QH SERIES Surface mount LED halo
## Distinctive Features and Specifications

Features

- Full LED halo illumination
- Single, dual and RGB colors available
- Designed to integrate with Ø16, Ø19 and Ø22mm panel cutout switches and other APEM indicators
- Ø22mm oversized version for integration with APEM's range of Emergency Stop Switches
- Panel sealed up to IP67
- 200mm 26AWG UL1061 wire terminations
- Zero behind panel depth
- Anti rotation pin as standard
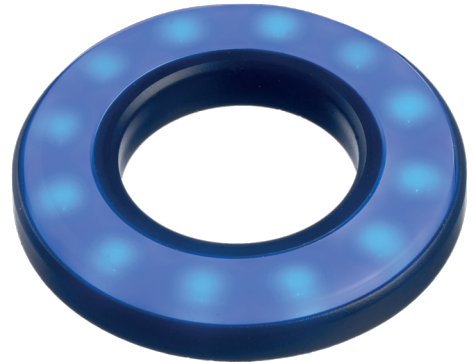
TECHNICAL SPECIFICATIONS

Voltage	Operating Voltage (Min to Max)	Operating Current (Typical All Types)
12VDC	12.0	4.2mA
to	to	
24VDC	26.4	20mA

Max Reverse Voltage : 5VDC	
Life Expectancy : 50,000 Hours	
Operating Temperature Range : -30 to +70°C	
Single color PCB : 12 LED's	
Dual color PCB : 12 LED's, 6 of each (alternately placed)	
RGB color PCB : 12 LED's	

Standard LED	Intensity	Forward Voltage
HE Red	120 mcd	2.0 (typical)
Green	350 mcd	3.1 (typical)
Yellow	90 mcd	2.0 (typical)
Blue	90 mcd	3.1 (typical)
White	350 mcd	3.1 (typical)

RGB	Intensity	Forward Voltage
Red	100 mcd	2.0 (typical)
Green	300 mcd	3.0 (typical)
Blue	90 mcd	3.0 (typical)

Luminous intensity will be reduced with lower operating current.

Panel seal : IP67 to EN60529 : 1992

EMC Immunity : EN61000-4-3
100V/m, extended to radiated fields in frequency range of 80MHz-2.7GHz, 1kHz 80% sine wave modulation

EMC Emissions : EN61000-6-4 : 2011
Class B 30Mhz-11Ghz

Electrostatic Discharge : EN61000-4-2 up to +/- 15KV

Bezel & Lens Material : PC

⚠ Dimensions : first dimensions are in mm while inches are shown as bracketed numbers.
Refer to the following pages for further information

Mounting accessories : Panel seal gasket

QH16, QH19 & QH22 Circuit Diagram

Color 1 +12 to 24VDC

R5 (add for single
0R color operation)

Color 2 +12 to 24VDC

R1 1K   R2 1K   R3 1K   R4 1K

0V Common

QH22L Circuit Diagram

+12 to 24VDC

R1 1K   R2 1K   R3 1K   R4 1K

0V Common
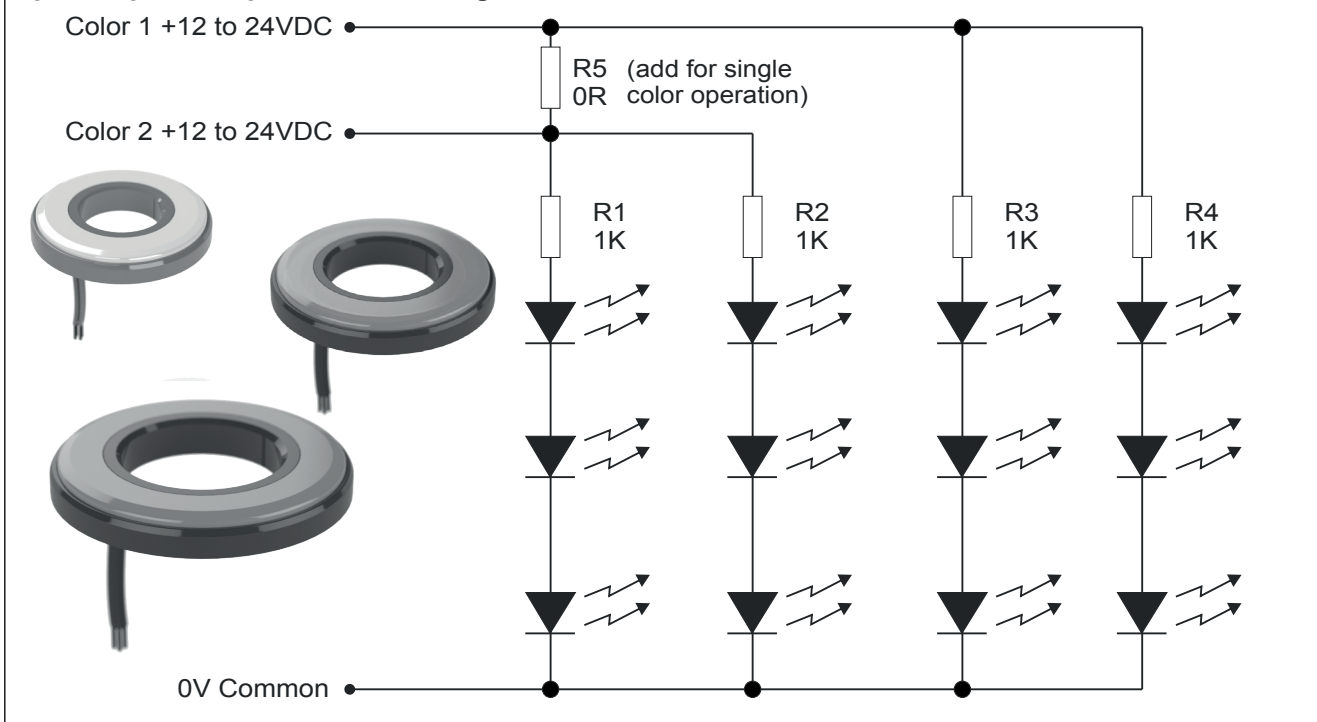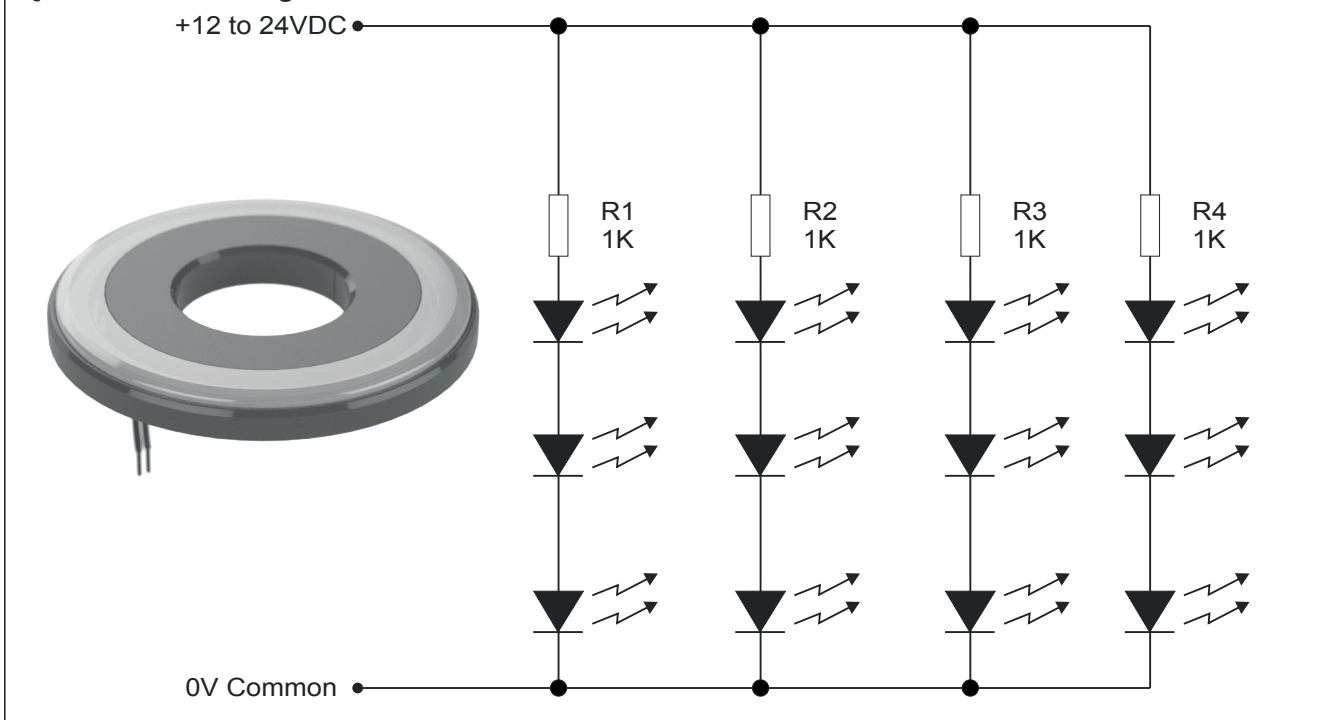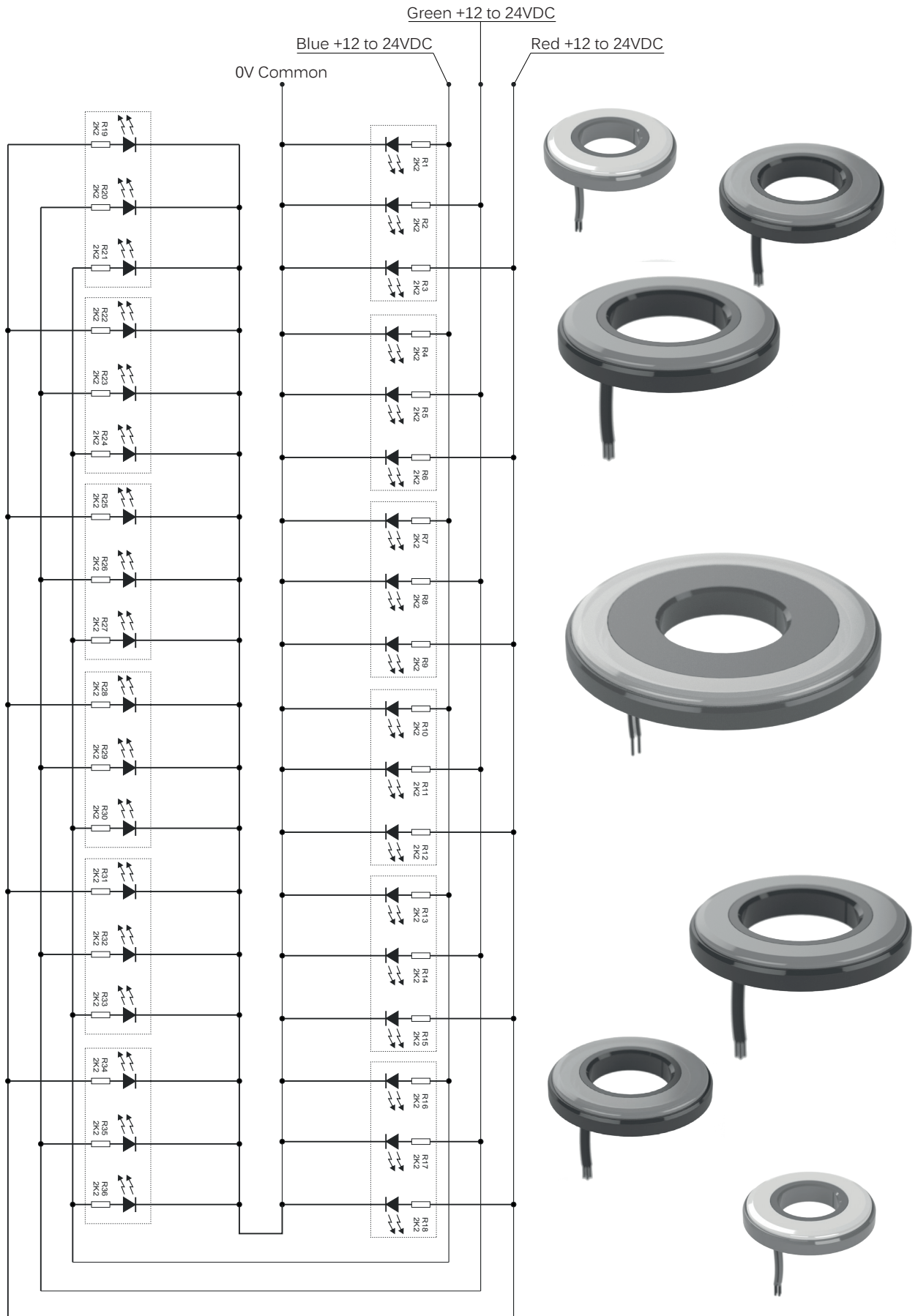
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Technical specifications (Cont)

QH16, QH19 & QH22 RGB Circuit Diagram

Green +12 to 24VDC

Blue +12 to 24VDC

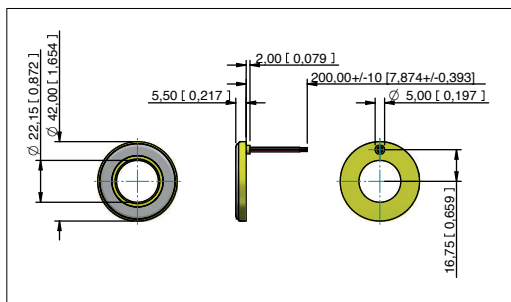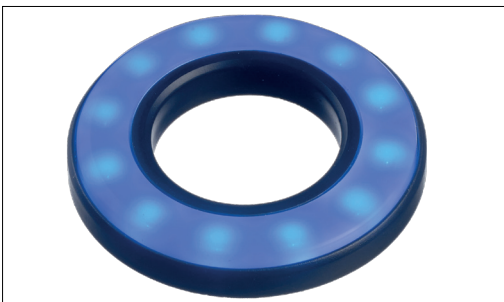Red +12 to 24VDC

0V Common
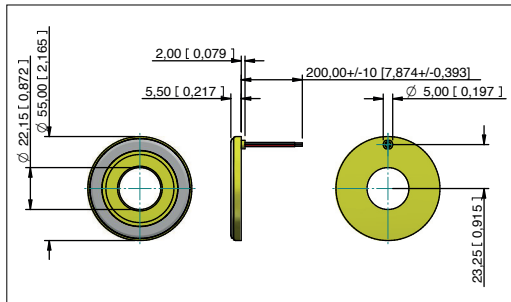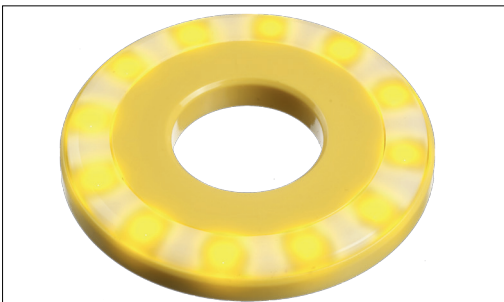
QH16 Ø16mm (.634")
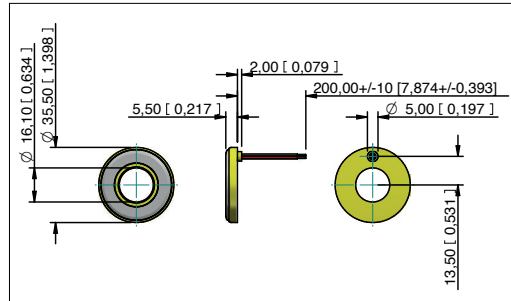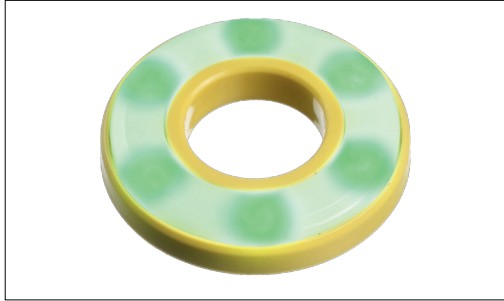
QH19 Ø19mm (.752")
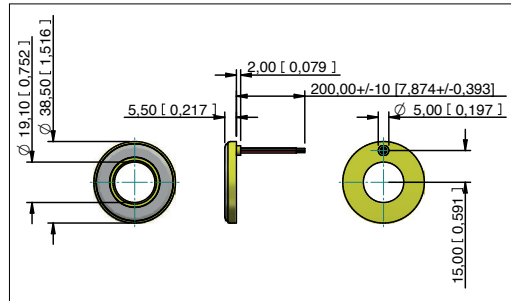
QH22 Ø22mm (.872")

QH22L Ø22mm (.872")
(oversized)

QH SERIES Surface mount LED halo

Order Overview

STANDARD OPTIONS

The QH Series is available with a range of standard options, to specify your LED, simply choose one option from each column. An example is shown below.

QH	22L	5	7	Y	C
SERIES	**SIZE**	**BEZEL COLOR**	**LENS COLOR**	**LED COLOR**	**SEALING**

SERIES	SIZE	BEZEL COLOR	LENS COLOR	LED COLOR	SEALING
QH	160 = 16mm cutout	1 = Blue	1 = Blue	**Single LED**	U = Unsealed
	190 = 19mm cutout	2 = Black	3 = Green	R = Red	C = IP67 (panel seal)
	220 = 22mm cutout	3 = Green	5 = Yellow	G = Green	
	22L = 22mm cutout	5 = Yellow	6 = Red	Y = Yellow	
		6 = Red	7 = Frosted White	B = Blue	
		7 = White	8 = Tinted	W = White (clear)	
			9 = Transparent	**RGB LED**	
				RGB = RGB	
				Dual LED	
				RG = Red/Green	
				RY = Red/Yellow	
				BW = Blue/White	

Example

QH22L57YC
Shown fitted to an Emergency Stop Switch

- Standard wire length is 200mm, 26AWG UL1061, for other wire lengths please contact APEM
- Colored wire denotes Anode (+), black wire denotes Cathode (-)
- Supply voltage is 12 to 24VDC, for alternative voltages please contact APEM
- Dual color LEDs are alternately placed on the internal PCB, by connecting one colored wire (+) a color is produced, by connecting the other colored wire (+) the second color is produced
- When implementing full-spectrum RGB the customer should supply an external Microcontroller driver